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ABSTRACT

In response to recent stress on incorporating core thinking into subject curriculum, the mediated learning experience (MLE) is being incorporated into the preservice training modules of the Singapore National Institute of Education (NIE). This study examines: (1) factors contributing to the preservice teacher's commitment to using MLE; (2) specific components of MLE that are actually implemented; (3) the extent to which teachers manifest any transfer when teaching content areas; and (4) practical problems faced by teachers when implementing MLE in a school setting. This study is ongoing and only qualitative data have been analyzed so far. Preservice graduate teachers (n=46) were given 20 hours of training in the application of MLE criteria during their first year at NIE. Graduate teacher trainees were posted for about 10 weeks of teaching practice (practicum) in several primary and secondary schools. Anecdotal records, videotapes of MLE lessons and a reflective rating scale were used. Most participants reported that they would continue to use MLE procedures even after graduation; some suggested that in-service training would facilitate proper implementation of the program. (Contains 10 references.) (LH)

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MEDIATED LEARNING EXPERIENCE: APPLICATION ACROSS DIVERSE GROUPS - PRESERVICE TEACHERS IN SINGAPORE

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MEDIATED LEARNING EXPERIENCE: APPLICATION ACROSS DIVERSE GROUPS - PRESERVICE TEACHERS IN SINGAPORE

Abstract

The teaching profession has been criticised today as not providing students with high levels of cognitive functioning. At the same time many programs to help teach and think about thinking have been developed and introduced into schools. The mediated learning experience (MLE) program based on the pioneering work of Reuven Feuerstein's research on Instrumental Enrichment and The Learning Propensity Assessment Device, has been developed as one possible approach to help teachers trained in a technique to enhance metathinking in their students. Based on the role of the mediation process, the MLE program has been widely researched, criticised and acclaimed. This paper focuses on the incorporation of MLE into the preservice teacher training modules at the National Institute of Education, Singapore. The effectiveness of this training strategy will be discussed and the implications for inservice training will be highlighted.

Much criticism is being leveled today at the teaching profession, both for failure by teachers to provide students with high levels of cognitive functioning and for failure by them to apply careful and systematic thinking to their instructional tasks. The recent interest in providing students with cognitive skills assumes rather presumptously that teachers are equipped to teach such skills. Unfortunately, teachers are often unprepared to foster cognitive development in their students and are only partially able to identify the cognitive operations underlying their teaching. Explicit training in thinking strategies for effective instruction and learning rarely occurs in the professional preparation of teachers.

Currently many programmes to help teachers teach and think about thinking have been developed and introduced into schools. One in particular - the Feuerstein Instrumental Enrichment Programme is a cognitive intervention programme designed to improve the cognitive modifiability of retarded performers and to enhance their ability to learn. This programme is based on the theory of structural cognitive modifiability and the Theory of Mediated Learning Experience (MLE). This strategy is a new and different way of conceptualising how cognitive skills can be taught. It is based on a model of interactive learning and thinking and the approach has been widely researched, criticised and acclaimed.

Feuerstein (1980) maintains that many problems in learning are the result of insufficient or inadequate MLE. He has developed a programme, Instrumental Enrichment, to provide MLE in a systematic way in the classroom. The general goal of the program is to teach children prerequisites of thinking and learning so that they will learn how to learn and be able to adapt and adjust to everchanging life conditions.

Systematic training in learning and problem solving skills are given based on fourteen sets of exercises, each focusing on a particular aspect of cognitive functioning. The activities try to stay away from content areas. The teacher's task is to encourage and motivate an awareness of cognitive processes and their transfer to outside personal, social and academic situations. The following cognitive functions are enhanced such as comparative behaviour, systematic search, problem definition, planning, hypothesis testing, spatial and temporal orientation and the ability to consider two or more sources of information simultaneously.

Feuerstein believes that there are two modalities of learning: a direct approach and a mediated approach. (Skuy 1991). The direct approach to learning is based on Piaget's formula of S-O-R which translated means that the organism (O) or individual leaner interacts directly with the stimuli (S) of the surrounding world and responds (R). Mediated learning is the second and vital approach that ensures effective learning. Feuerstein develops Piaget's formula of S-O-R further to include a human mediator between the world of stimuli, the organism and the response. His new formula for mediated learning is then S-H-O-H-R, where H is the human mediator. The human

mediator interposes himself between the learning organism and the world of stimuli to interpret, guide and give meaning to the stimuli. In this kind of interaction learning is intentional.

The theory of MLE is based on three assumptions. First, cognitive processing can be substantially modified through effective intervention, changing the expected course and outcome of development. Secondly, the learning of effective cognitive processes occurs through MLE and lastly, more efficient cognitive functioning can be taught through systematically providing MLE.

MLE is the process by which a mediator organises and interprets the world to a child. When an individual gives meaning to events, helps children select relevant from irrelevant variable, assists in abstracting rules for regularly occuring phenomena, and generally attempts to develop children's abilities to think, that individual is engaged in mediated learning. MLE begins within the family context with parents and continues with teachers and significant others, and passing on cultural norms, values and modes of thought from one generation to another. A lack of MLE, due to a variety of reasons inherent in the mediator or the child, leads to deficient cognitive functioning and low levels of modifiability. The child is not able to adapt to and learn from interactions in his/her environment.

MLE has been used extensively in Israel, Venezuela, United States, Canada and in Europe where adolescents and adults have been culturally disadvantaged or mentally handicapped . Evaluations of the Instrumental Enrichment programme have shown considerable gains in groups receiving MLE. (Haywood etal 1982; Greenberg 1990). In addition , teachers who use the programme are very enthusiastic not only in terms of its effect on the children's thinking but in terms of its effect on their own teaching skills. Teachers report that their ability to understand each child's learning problems, and thus intervene effectively, improves after teaching this program (Samuels 1987).

Instrumental Enrichment when properly implemented, has been shown to have a long-lasting beneficial influence on the cognitive structure of the student. There is empirical evidence from several follow-up studies for the structural and growing effect of the programme on students. (Egozi 1991). Two major studies show that the positive effect of the programme continued to increase at least for two or three years after completion of intervention. (Feuerstein, 1980). According to Egozi, such a long-term effect is rarely found among intervention studies in the field of education.

Egozi noted that many teachers who were trained in the programme changed enthusiastically in their understanding of and attitude towards students with learning difficulties. They were also able to cope with these students and to offer them meaningful teaching. Egozi made reference to a typical comment from a veteran teacher:

"I am happy to see my students looking forward eagerly towards their IE lessons. These are students suffering from a broad spectrum of problems. The IE program has helped them to strengthen their self-image. This strengthening enabled us to cope more

efficiently with the emotional problems of the children, to restrain their impulsivity and to better organise their thinking. Moreover, IE caused changes in myself as well. It changed my attitudes, my approach and my teaching methods. After being an educator for 24 years, I found that teaching the instruments and leading the students towards abstract thinking has opened my eyes and I started seeing new things, new methods. I began to regard teaching in a different way and from a different viewpoint.."

In Blagg's (1991) study a comprehensive evaluation was made of the Instrumental Enrichment program in four secondary schools in England. The results were mixed . The teachers found the materials too abstract and unfamiliar, too repetitive and poorly presented and culturally inappropriate. Nevertheless, there were positive outcomes . The teachers who used the programme became more assertive, confident and self reliant. They were also more satisfied with their jobs, more sure of their teaching abilities, more committed to their profession and more valued in their work.

The programme sets stringent conditions for teachers who want to apply the theory of mediated learning experience in their classrooms. All teachers must undergo special training in the theory and didactics of the program before being allowed to use it. In Israel, the full curriculum for training teachers comprises about 200 lessons and about 100 hours of supervised teaching, model lessons and group discussions. This curriculum is taught in several stages during a period of two to four years. Novice teachers can start teaching the programme after a basic workshop of about 50 lessons.

Jensen and Feuerstein (1987) suggest ten criteria for an interaction to be considered a MLE. The first three criteria, intentionality, transcendence and meaningfulness are always present, while a fourth and fifth, regulation of behaviour and mediation of competence, are often present. However mediation is a dynamic and open process and should not be rigidly applied nor seen to be fixed at ten criteria. The following list of the ten criteria is taken from Mervyn Skuy's Mediated Learning Experience: Working Manual (1991). They are:

Intentionality and Reciprocity
Meaning
Transcendence
Competence
Self-Regulation and Control of Behaviour
Sharing Behaviour
Individuation
Goal Planning
Challenge
Self-Change

All the ten components of MLE as listed above indicate a great advantage of using it as an instructional tool for teachers. This advantage is that the teacher is not asked to replace his own behaviour, which has been culturally determined or produced by his individual preference or style. MLE instructors recommend that teachers use familiar and preferred

interactions. The quality of interaction will then become much more acceptable to them and will also affect their children much more strongly in terms of their structural cognitive modifiability.

MLE therefore, as a theory and as an operational system, allows us to understand human plasticity and modifiability. It serves as a powerful guide in shaping the interaction of the growing human being in a way that will permit him to increase his modifiability, wherever this has not developed owing to a lack of MLE.

Mediated Learning Experience and Teacher Training

The potential of the application of MLE theory as in a cognitive training package for teachers has not been empirically investigated with pre-service teachers in Singapore. The purpose of this paper is to examine the effectiveness of MLE concepts and strategies as used in the classroom by pre-service teachers during their practicum period.

Key questions asked would be:
What factors contribute to the pre-service teachers' commitment to using MLE?
Which specific components of MLE are actually implemented?
To what extent do these teachers manifest any transfer when teaching content areas?
Are there any practical problems faced by these teachers as they implement MLE in the school setting?

At the National Institute of Education (NIE), all initial teacher training programmes prepare teachers for work in the primary and secondary schools in Singapore. These trainees are expected to meet a number of criteria. A few important requirements are listed here:

1. All newly qualified teachers entering schools should have the necessary personal qualities for teaching children and should have achieved the levels of subject knowledge and understanding, and standards or professional competence, necessary to maintain and improve standards in schools.

2. Specifically, the student should have demonstrated in the classroom the ability to teach effectively and to secure effective learning and the ability to manage pupil behaviour and maintain discipline.

3. NIE will focus its programmes on students mastering the knowledge, skills and professional attitudes to teaching throughout the whole period of initial training. The progressive development of these competencies will be monitored regularly during training.

4. Newly qualified teachers should be able to identify and respond appropriately to relevant individual differences between pupils; show awareness of how pupils learn and of the various factors which affect the process; set appropriate and challenging

expectations of their pupils and devise a variety and range of learning goals and tasks and monitor and assess them.

5. Newly qualified teachers should have acquired in initial training the necessary foundation to develop vision, imagination and critical awareness in educating their pupils.

In March 1995, there was a call made by the Minister of Education to look into how to incorporate core thinking skills into the learning of subjects. It was noted that "our education system has developed in response to pressure from our society which has tended to focus on examination results. In this information age when a vast amount of knowledge can be accessed by the touch of a button, it is important to teach students how to find and process information rather than merely acquiring a vast amount of knowledge." (Straits Times Page 28). A committee was set up to look into the development of creativity in the education system. Teachers were urged to teach students to think critically, creatively and to learn independently.

In Sept 1996, at the Prime Minister's speech at the Teachers' Day Rally, the importance of thinking skills was stressed. The basic subject knowledge and concepts must still be taught- they are the foundation for further learning but the curriculum and system will encourage teachers and students to have critical discussion and innovative thinking in the classroom. The Ministry of Education will expand its Thinking Skills programme to more schools, reaching all secondary schools by the year 2000. The stress for thinking to be in the school curriculum has intensify in the last few years. This has repercussion in the professional preparation of teachers.

This paper is an attempt to examine the effectiveness of incorporating MLE theory in a thinking course module conducted in NIE. The study is ongoing and only qualitative data collected so far has been analysed. 46 preservice graduate teachers in their first year of training at the NIE, were given only 20 hours training in the application of ten criteria of MLE. The theory and practice of MLE components were embedded in an education studies elective module. A manual was developed to accompany the training. After the workshop, the graduate teacher trainees were posted for about 10 weeks of teaching practice (known as the practicum) in several primary and secondary schools. During their practicum, the trainees were encouraged to implement the MLE strategy in all their content lessons. Anecdotal records, video tapes of their MLE lessons and a reflective rating scale were used and these were submitted for analyses towards the end of the practicum.

Results : some highlights from the analyses

The presentation and training of the ten MLE components to the 46 student graduate teachers had resulted in basically two areas : the training had addressed their

individual cognitive functions as well as assisting them in their instructional tasks. Despite the short training period, sufficient awareness has been created.

Based on their submitted anecdotal records and observations, the results appear very promising:

1. Preservice teachers sent to the primary schools tend to focus on pupil behaviour problems compared to those focusing on learning problems in the secondary schools

2. It is much easier (according to the combined comments) to mediate effectively on social tasks than cognitive tasks.

3. The first three MLE criteria ie intentionality and reciprocity, meaning and transcendence are usually implemented consistently and successfully.

4. The most difficult MLE activity to implement is mediation for self change. This activity was insufficiently implemented.

5. There was some encouraging evidence of attitudinal change among the pre-service teachers (though it is too early yet to monitor or measure this behaviourial change). Their comments suggest that they are more careful and thoughtful over how they plan their daily lessons in their own subject areas. They pay close attention to how different pupils should be grouped for different forms of classroom involvement and participation . During their course of their teaching practice, it was generally agreed that their pupils have become more competent in their work though the bridging process did not work well all the time.

6. A few teachers indicate that they face some conflict when their own supervisors suggest a teaching style that does not allow for mediational teaching. Their anxiety level went up when they had insufficient time to plan and prepare MLE based lessons especially novices who had not done any previous relief teaching.

7. Several teachers remained despondent after the practicum period about the plight of really low achievers in their classes. They were aware of their potential for learning but frustrated in not being able to mediate more because of limited time and resources.

8. Two rating scales were used in this study. Each trainee was assessed on their teaching by their supervisors based on the APT (Assessment of Performance on Teaching) form and everyone of them assessed themselves at least once on one MLE lesson based on the MLE Rating Scale. (the forms are attached) Feedback suggests that the MLE Rating Scale should be used for more lessons across different content areas. Some MLE activities are stressed more in certain subject areas. The preservice teachers rated the MLE scale as more meaningful and comprehensive than the APT form which has been developed by the Institute for the practicum evaluation.

9. The working manual, though carefully adapted from the South African model, has problems in interpretation and implementation. The examples are not highly relevant in the Singapore context. There is a need to revise and refine some of the activities suggested.

This study is not intended to be a highly detailed and thorough evaluation of the application of MLE principles by pre-service teachers in their teaching practice. The training period (20 lessons only compared to the required 50 for novice teachers) is too short for these teachers to allow any strong evidence for MLE to positively influence pupil attainment or work study skills. However, there is some basis for certain attitudinal changes occuring in the teachers. It appears that the positive results of this small study are related more to the underlying rationale of MLE theory than the materials and activities drawn out in the manual.

The perceptions of these pre-service teachers regarding the MLE training are encouraging. Majority reported that they would continue to use MLE procedures even after graduation. They would like to carry on using aspects of the MLE manual in their teaching despite its limitations. A few indicated that in-service training would be a welcome feature to allow them to implement the programme adequately. Administrative support is important and it is urgent that principals must be familiar with MLE principles and applications. A few suggestions indicate that it is highly desirable for additional follow-up sessions to occur over a long period of time. Peer sharing and coaching are recommended. Further development and replication of the workshop materials are still necessary for training more groups of pre-service teachers from the non-graduate programmes.

A few recommendations can be made. It is shown that the teaching of cognitive change is highly necessary and urgent in today's schools, not only as a response to the pressing call from the Ministry of Education, but as a vital step to instil in our students s a critical mindset in readiness for the 21st century . Appropriate teaching resources and materials in cognitive education for teachers to use must be developed and made accessible. These must be periodically assessed and evaluated to suit specific content areas taught in schools. There is also a need for training in MLE to be organised on a more extensive and ongoing basis both for pre-service and in-service teachers. An integrated and comprehensive approach towards the teaching of thinking strategies across all levels of education has to be determined and mapped out. A promising start has been made with the MLE approach in the pre-service teaching training programmes. However, much remains to be done.

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